IN THE CLAIMS:

1. (Previously Presented) An apparatus for monitoring conditions downhole, comprising:

a casing string cemented in a wellbore, wherein the casing string comprises a deployment valve configured to substantially obstruct a bore of the casing string in a closed position and to provide a passageway for a tool to pass through the bore in an open position and the deployment valve is an integral part of the casing string; and

an optical sensor operatively connected to the deployment valve for sensing a wellbore parameter.

2. (Original) The apparatus of claim 1, wherein the wellbore parameter is an operating parameter of the deployment valve.

3. (Original) The apparatus of claim 1, wherein the wellbore parameter is selected from a group of parameters consisting of: a pressure, a temperature, and a fluid composition.

4. (Original) The apparatus of claim 1, wherein the wellbore parameter is a seismic wave.

5. (Original) The apparatus of claim 1, further comprising a control member for controlling an operating parameter of the deployment valve.

6. (Currently Amended) The apparatus of claim 5, wherein the operating parameter is selected from a group of operations consisting of: opening the valve, closing the valve, equalizing a pressure, <u>and</u> relaying the wellbore parameter.

7-12. (Canceled)

13. (Original) The apparatus of claim 1, wherein the wellbore parameter is a seismic acoustic wave transmitted into a formation from a seismic source.

14. (Original) The apparatus of claim 13, wherein the seismic source is located within a drill string in a wellbore.

15. (Original) The apparatus of claim 13, wherein the seismic source is located at a surface of a wellbore.

16. (Currently Amended) The apparatus of claim 13, wherein the ~~downhole~~ deployment valve is located within a first wellbore and the seismic source is located within a second wellbore.

17. (Original) The apparatus of claim 13, wherein the seismic source is a vibration of a wellbore tool against a wellbore.

18-60. (Canceled)

61. (Previously Presented) A method for measuring wellbore or formation parameters, comprising:

placing a downhole tool within a wellbore, the downhole tool comprising:

a casing string, at least a portion of the casing string comprising a downhole deployment valve, and

an optical sensor disposed on the casing string;

cementing the casing string within the wellbore; and

lowering a drill string into the wellbore while sensing wellbore or formation parameters with the optical sensor.

62. (Original) The method of claim 61, further comprising adjusting a trajectory of the drill string while lowering the drill string into the wellbore.

63. (Original) The method of claim 61, further comprising adjusting a composition or amount of drilling fluid while lowering the drill string into the wellbore.

64. (Original) The method of claim 61, wherein sensing wellbore or formation parameters with the optical sensor comprises receiving at least one acoustic wave transmitted into a formation from a seismic source.

65. (Original) The method of claim 64, wherein the seismic source transmits the at least one acoustic wave from the drill string to the optical sensor.

66. (Original) The method of claim 64, wherein the seismic source transmits the at least one acoustic wave from a surface of the wellbore to the optical sensor.

67. (Original) The method of claim 64, wherein the seismic source transmits the at least one acoustic wave from an adjacent wellbore to the optical sensor.

68. (Original) The method of claim 64, wherein the seismic source transmits the at least one acoustic wave from the drill string vibrating against the wellbore to the optical sensor.

69. (Original) The method of claim 61, further comprising selectively obstructing a fluid flow path within the casing string with the downhole deployment valve while lowering the drill string.

70. (Previously Presented) An apparatus for monitoring conditions within a wellbore or a formation, comprising:

a casing string cemented in the wellbore, at least a portion of the casing string comprising a downhole deployment valve for selectively obstructing a fluid path through the casing string;

at least one optical sensor disposed on the casing string for sensing one or more parameters within the wellbore or formation; and

a control line substantially parallel to an optical line connecting a surface monitoring and control unit to the downhole deployment valve, wherein at least a portion of the control line and the optical line are protected by at least one housing disposed around the casing string.

71. (Original) The apparatus of claim 70, wherein the at least one optical sensor comprises at least one of a seismic sensor, acoustic sensor, pressure sensor, or temperature sensor.

72. (Original) The apparatus of claim 70, further comprising a seismic source for transmitting at least one acoustic wave into the formation for sensing by the optical sensor.

73. (Original) The apparatus of claim 72, wherein the seismic source is disposed within a drill string within the casing string.

74. (Original) The apparatus of claim 72, wherein the seismic source is disposed at a surface of a wellbore.

75. (Original) The apparatus of claim 72, wherein the seismic source is disposed in an adjacent wellbore.

76. (Original) The apparatus of claim 72, wherein the seismic source is vibration of a drill string within the casing string.

77. (Original) The apparatus of claim 70, further comprising additional optical sensors disposed on the outside of the casing string and in communication with an optical line for monitoring conditions at different locations within the wellbore or formation.

78-79. (Canceled)

80. (Previously Presented) The apparatus of claim 70, wherein the casing string further comprises a flow meter having one or more optical sensors thereon for measuring at least one of a flow rate of a fluid flow through the casing string and a composition of the fluid.

81. (Previously Presented) A method for permanently monitoring at least one wellbore or formation parameter, comprising:

placing a casing string within a wellbore, at least a portion of the casing string comprising a downhole deployment valve with at least one optical sensor disposed therein, wherein the downhole deployment valve is an integral part of the casing string;

cementing the casing string in the wellbore;

operating the deployment valve between closed and open positions, wherein the closed position substantially obstructs a bore of the casing string and the open position provides a passageway for a tool to pass through the bore; and

sensing at least one wellbore or formation parameter with the optical sensor.

82. (Original) The method of claim 81, wherein a seismic source transmits at least one acoustic wave into the formation for sensing by the at least one optical sensor.

83. (Original) The method of claim 82, wherein the seismic source is disposed at a surface of the wellbore.

84. (Original) The method of claim 83, wherein the seismic source is moved to at least two locations at the surface to transmit a plurality of acoustic waves into the formation.

85. (Original) The method of claim 81, wherein the at least one wellbore or formation parameter comprises microseismic measurements.

86. (Previously Presented) The method of claim 81, wherein the at least one optical sensor comprises a seismic sensor, pressure sensor, temperature sensor, or acoustic sensor.

87. (Previously Presented) The method of claim 81, wherein the casing string further comprises a flow meter and wherein the flow meter senses at least one of a flow rate of fluid and a composition of the fluid.

88. (Previously Presented) A method for determining flow characteristics of a fluid flowing through a casing string, comprising:

providing a casing string cemented within a wellbore, the casing string comprising a downhole deployment valve and at least one optical sensor coupled thereto, wherein the downhole deployment valve is an integral part of the casing string;

measuring characteristics of fluid flowing through the casing string using the at least one optical sensor; and

determining at least one of a volumetric phase fraction for the fluid [[or]] <u>and</u> flow rate for the fluid based on the measured fluid characteristics.

89. (Original) The method of claim 88, wherein the fluid is introduced while drilling into a formation.

90. (Original) The method of claim 89, further comprising adjusting the flow rate of the fluid while drilling into the formation.

91. (Previously Presented) The method of claim 89, further comprising using the at least one of the volumetric phase fraction and the flow rate to determine formation properties while drilling into the formation.

92. (Previously Presented) An apparatus for determining flow characteristics of a fluid flowing through a casing string in a wellbore, comprising:

a casing string cemented in the wellbore, the casing string comprising a downhole deployment valve, wherein the downhole deployment valve is an integral part of the casing string; and

at least one optical sensor coupled to the casing string for sensing at least one of a volumetric phase fraction of the fluid and a flow rate of the fluid through the casing string.

93. (Original) The apparatus of claim 92, wherein the fluid comprises drilling fluid introduced into the casing string while drilling into a formation.

94. (Previously Presented) The apparatus of claim 92, wherein the casing string further comprises one or more optical sensors attached thereto for detecting the position of the downhole deployment valve.

95. (Previously Presented) An apparatus for downhole monitoring, comprising:

a casing string cemented in the wellbore, the casing string comprising a downhole deployment valve, the deployment valve comprising:

a housing having a fluid flow path therethrough;

a valve member operatively connected to the housing for selectively obstructing the flow path; and

an optical sensor physically connected to the housing, wherein the sensor is adapted to enable sensing a seismic wave.

96. (Previously Presented) The apparatus of claim 95, further comprising a seismic source for transmitting the seismic wave into a formation.

97. (Previously Presented) An apparatus for monitoring conditions downhole, comprising:

a casing string cemented in a wellbore, wherein the casing string comprises a deployment valve configured to substantially obstruct a bore of the casing string in a

closed position and to provide a passageway for a tool to pass through the bore in an open position; and

an optical sensor operatively connected to the deployment valve for sensing a wellbore parameter, wherein the wellbore parameter is a seismic wave.

98. (Previously Presented) An apparatus for monitoring conditions downhole, comprising:

a casing string cemented in a wellbore, wherein the casing string comprises a deployment valve configured to substantially obstruct a bore of the casing string in a closed position and to provide a passageway for a tool to pass through the bore in an open position; and

an optical sensor operatively connected to the deployment valve for sensing a wellbore parameter, wherein the wellbore parameter is a seismic acoustic wave transmitted into a formation from a seismic source.

99. (Previously Presented) The apparatus of claim 98, wherein the seismic source is located within a drill string in a wellbore.

100. (Previously Presented) The apparatus of claim 98, wherein the seismic source is a vibration of a wellbore tool against a wellbore.

101. (Previously Presented) A method for permanently monitoring at least one wellbore or formation parameter, comprising:

placing a casing string within a wellbore, at least a portion of the casing string comprising a downhole deployment valve with at least one optical sensor disposed therein;

cementing the casing string in the wellbore;

operating the deployment valve between closed and open positions, wherein the closed position substantially obstructs a bore of the casing string and the open position provides a passageway for a tool to pass through the bore; and

sensing at least one wellbore or formation parameter with the optical sensor, wherein a seismic source transmits at least one acoustic wave into the formation for sensing by the at least one optical sensor.

102. (Previously Presented) A method for permanently monitoring at least one wellbore or formation parameter, comprising:

placing a casing string within a wellbore, at least a portion of the casing string comprising a downhole deployment valve with at least one optical sensor disposed therein;

cementing the casing string in the wellbore;

operating the deployment valve between closed and open positions, wherein the closed position substantially obstructs a bore of the casing string and the open position provides a passageway for a tool to pass through the bore; and

sensing at least one wellbore or formation parameter with the optical sensor, wherein the at least one wellbore or formation parameter comprises microseismic measurements.

103. (Previously Presented) A method for permanently monitoring at least one wellbore or formation parameter, comprising:

placing a casing string within a wellbore, at least a portion of the casing string comprising a downhole deployment valve with at least one optical sensor disposed therein and a flow meter, wherein the flow meter senses at least one of a flow rate of fluid or a composition of the fluid;

cementing the casing string in the wellbore;

operating the deployment valve between closed and open positions, wherein the closed position substantially obstructs a bore of the casing string and the open position provides a passageway for a tool to pass through the bore; and

sensing at least one wellbore or formation parameter with the optical sensor.

104. (Previously Presented) A method for determining flow characteristics of a fluid flowing through a casing string, comprising:

providing a casing string cemented within a wellbore, the casing string comprising a downhole deployment valve and at least one optical sensor coupled thereto;

measuring characteristics of fluid flowing through the casing string using the at least one optical sensor, wherein the fluid is introduced while drilling into a formation;

determining at least one of a volumetric phase fraction for the fluid and flow rate for the fluid based on the measured fluid characteristics; and

adjusting the flow rate of the fluid while drilling into the formation.

105. (Previously Presented) An apparatus for determining flow characteristics of a fluid flowing through a casing string in a wellbore, comprising:

a casing string cemented in the wellbore, the casing string comprising a downhole deployment valve and one or more optical sensors attached thereto for detecting the position of the downhole deployment valve; and

at least one optical sensor coupled to the casing string for sensing at least one of a volumetric phase fraction of the fluid and a flow rate of the fluid through the casing string.

106. (Previously Presented) A method of using a downhole deployment valve (DDV) in a wellbore extending to a first depth, the method comprising:

assembling the DDV as part of a tubular string, the DDV comprising:

a valve member movable between an open and a closed position;

an axial bore therethrough in communication with an axial bore of the tubular string when the valve member is in the open position, the valve member substantially sealing a first portion of the tubular string bore from a second portion of the tubular string bore when the valve member is in the closed position; and

an optical sensor configured to sense a parameter of the DDV, a parameter of the wellbore, or a parameter of a formation;

running the tubular string into the wellbore; and

running a drill string through the tubular string bore and the DDV bore, the drill string comprising a drill bit located at an axial end thereof; and

drilling the wellbore to a second depth using the drill string and the drill bit.

107. (Previously Presented) The method of claim 106, wherein the wellbore is drilled in an underbalanced or near underbalanced condition.

108. (Previously Presented) The method of claim 106, wherein the DDV axial bore has a diameter substantially equal to the diameter of an axial bore through the tubular string.

109. (Previously Presented) The method of claim 106, wherein the optical sensor is configured to sense a pressure, a temperature, or a fluid composition.

110. (Previously Presented) The method of claim 106, wherein the optical sensor is configured to sense a seismic pressure wave.

111. (Previously Presented) The method of claim 106, wherein the optical sensor is configured to sense the position of the valve member.

112. (Previously Presented) The method of claim 106, wherein the DDV further comprises a receiver configured to detect a signal from a tool disposed in the drillstring.

113. (Previously Presented) The method of claim 112, wherein the signal is an electromagnetic wave.

114. (Previously Presented) The method of claim 112, further comprising: receiving the signal from the tool with the receiver; and transmitting data from the DDV to the surface.

115. (Previously Presented) The method of claim 114, further comprising providing a monitoring/control unit (SMCU) at the surface of the wellbore, the SMCU in communication with the DDV.

116. (Currently Amended) The method of claim 115, wherein disposing the DDV within the tubular string comprises disposing a control line along the ~~casing~~ tubular string to provide communication between the DDV and the SMCU.

117. (Previously Presented) The method of claim 114, further comprising relaying the signal to a circuit operatively connected to the receiver.

118. (Previously Presented) The method of claim 114, wherein the tool is a measurement while drilling tool.

119. (Previously Presented) The method of claim 114, wherein the tool is a pressure while drilling tool.

120. (Previously Presented) The method of claim 114, wherein the tool is an expansion tool.

121. (Currently Amended) The method of claim 120, further comprising controlling an operation of the expansion tool based on the ~~data~~ signal.

122. (Previously Presented) The method of claim 120, further comprising: measuring in real time a fluid pressure within the expansion tool and a fluid pressure around the expansion tool during an installation of an expandable sand screen; and adjusting the fluid pressure within the expansion tool.

123. (Previously Presented) The method of claim 106, wherein the DDV further comprises a second optical sensor, and the optical sensors are configured to sense pressure differential across the DDV.

124. (Previously Presented) The method of claim 123, wherein:

the method further comprises:

closing the valve member to substantially seal the first portion of the bore from the second portion of the bore;

measuring the pressure differential across the DDV;

equalizing a pressure differential between the first portion of the wellbore and the second portion of the wellbore; and

opening the valve member.

125. (Previously Presented) The method of claim 124, wherein the first portion of the wellbore is in communication with a surface of the wellbore.

126. (Previously Presented) The method of claim 124, further comprising: providing a monitoring/control unit (SMCU) at the surface of the wellbore, the SMCU in communication with the DDV, wherein disposing the DDV within the tubular string comprises disposing a control line along the tubular string to provide communication between the DDV and the SMCU.

127. (Previously Presented) The method of claim 126, further comprising controlling a pressure in the first portion of the wellbore with the SMCU.

128. (Previously Presented) The method of claim 124, further comprising lowering the pressure in the first portion of the wellbore to substantially atmospheric pressure.

129. (Currently Amended) The method of claim 124, wherein:

the DDV further comprises a third optical sensor,

the third optical sensor is configured to sense the DDV position, and

the method further comprises determining whether the valve member is in the open position, the closed position, or a position between the open position and the closed position with the <u>third</u> sensor.

130. (Previously Presented) The method of claim 124, wherein:

the DDV further comprises a third optical sensor,

the third optical sensor is configured to sense a temperature of the wellbore, and

the method further comprises determining a temperature at the downhole deployment valve with the third sensor.

131. (Previously Presented) The method of claim 124, wherein:

the DDV further comprises a third sensor,

the third sensor is configured to sense the presence of the drill string, and

the method further comprises determining a presence of the drill string within the DDV bore with the third sensor.

132. (Previously Presented) The method of claim 106, wherein the DDV further comprises a second sensor and the second sensor is configured to sense a presence of a drill string within the DDV.

133. (Previously Presented) The method of claim 106, wherein the DDV is located at a depth of at least ninety feet in the wellbore.

134. (Currently Amended) The method of claim 106, wherein the optical sensor is configured to sense [[a]] <u>the</u> parameter of the wellbore or [[a]] <u>the</u> parameter of [[a]] <u>the</u> formation and the method further comprises sensing the wellbore or formation parameter with the optical sensor while drilling the wellbore to the second depth.

135. (Previously Presented) The method of claim 134, further comprising adjusting a trajectory of the drill string while drilling the wellbore to the second depth.

136. (Previously Presented) The method of claim 134, further comprising adjusting a composition or amount of drilling fluid while drilling the wellbore to the second depth.

137. (Currently Amended) The method of claim 134, wherein sensing the wellbore or formation ~~parameters~~ parameter with the optical sensor comprises receiving at least one acoustic wave transmitted into a formation from a seismic source.

138. (Previously Presented) The method of claim 137, wherein the seismic source transmits the at least one acoustic wave from the drill string to the optical sensor.

139. (Previously Presented) The method of claim 137, wherein the seismic source transmits the at least one acoustic wave from a surface of the wellbore to the optical sensor.

140. (Previously Presented) The method of claim 137, wherein the seismic source transmits the at least one acoustic wave from an adjacent wellbore to the optical sensor.

141. (Previously Presented) The method of claim 137, wherein the seismic source transmits the at least one acoustic wave from the drill string vibrating against the wellbore to the optical sensor.

142. (Previously Presented) The method of claim 134, wherein the wellbore or formation parameter is a microseismic measurement.

143. (Previously Presented) The method of claim 106, further comprising assembling a flow meter as part of the tubular string.

144. (Previously Presented) The method of claim 143, further comprising injecting drilling fluid through the drill string while drilling the wellbore to the second depth, wherein the drilling fluid returns from the drill bit through the tubular string

145. (Previously Presented) The method of claim 144, the method further comprises measuring characteristics of the return fluid using the flow meter.

146. (Previously Presented) The method of claim 145, further comprising determining at least one of a volumetric phase fraction for the return fluid and flow rate of the return fluid based on the measured fluid characteristics.

147. (Previously Presented) The method of claim 146, further comprising adjusting the injection rate of the drilling fluid.

148. (Previously Presented) The method of claim 146, further comprising using the at least one of the volumetric phase fraction and the flow rate to determine formation properties while drilling the wellbore to the second depth.